August 10, 1955

Dr. J. C. Gould
Bacteriology Department
University New Building
Teviot Place Edinburgh 1

Dear Dr. Gould:

Your note in Nature for July 23 has just come to my notice. Might I ask the favor of reprints of your work on drug resistance, [illegible] which I would particularly like to have for my reference file for a monograph pn the subject.

I hope you are planning to investigate the mechanism of this effect more fully. I would doubtp that an "ordinary" mutation to penicillin resistance would alter the phage type, and wonder if exposure to the drug is not the essential precondition. There is a strong suggestion of such an effect in Voureka' s paper (J. Gen Microb.6:352). If so, one might get changes in [illegible] phage type after exposure without necessarily developing resistance. Alternatively, the new phage type might directly confer resistance per se. Are there type III strains that are penicillin-sensitive?

Another approach to this hypothetical mechanism would be replica plating and indirect selection; if the phage type change depended on exposure to the drug, then resistant mutants selected indirectly might [illegible] retain their [illegible] original lysotype (and might be especially suitable materia to demonstrate direct effects of penicillin on the lysotype).

We had another suggestion of this effect some time ago: a lysogenic Salmonella strain would (sometimes sporadically, but especially under the *penicillin) influence of *[illegible]) release a more virulent phage which, in turn re-infected the parent bacterium. The reinfected strain had a different lysis pattern to various phages, but was not tested by the standard typing reagents.

Yours sincerely,

Joshua Lederberg
Professor of Genetics